

the past 40 years. Since 2002, many studies have been published either to support the theory or to refute the old viewpoint.

Objective: The purpose of this study was to determine the validity of refutations of the Bonghan theory by reviewing publications on that subjects.

Methods: Searches were made of online databases (Riss4u.net, Google.com, Sciencedirect.com, Pubmed.com, baidu.com, and ci.nii.ac.jp) from 1960 to 2009. The search terms that were used were “Bonghan”, “Bong han”, “봉한”, “thread-like structure”, “Ким Бон Ханом”, “СИСТЕМА КЕРАК”, “鳳漢”, “鳳漢管”, and “鳳漢字說.” References from publications found in the search were also used.

Results: Since the 1960s, 107 publications were identified as related works, but only 11 publications sought to refute the Bonghan theory. Two publications were research, and nine were reviews. In an analysis of the correlation of the arguments with the publication contents, the research of G. Kellner was found to have reviewed the Bonghan system properly, but that of V.V. Kosmatov did not classify the ear-reflex zone as a traditional acupuncture point. For the review publications, only two reviews contained proper arguments; seven publications were identified as broad interpretations, incorrect translations, etc. The two proper reviews were grounded on the research of G. Kellner.

Conclusions: We found that the scientific basis for the refutation of the Bonghan theory is the research by G. Kellner. This result suggests that discussions of the Bonghan theory are not sufficient to refute its validity.

Key Words: Bonghan, Bong han, G. Kellner, acupuncture points

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Biological Activities of Scolopendrid Pharmacopuncture

Sung-Chul Kim, Geun-Young Seo, Sung-Won Lee, Sung-Joo Park, Jae-Hyo Kim, Seong-Hun Ahn, Sung-Yeoun Hwang

Abstract

Objecetives: Our research objective was to examine the *in vitro* biological activity of Scolopendrid pharmacopuncture, including the total polyphenol content, DPPH radical scavenging, ABTS radical scavenging, superoxide dismutase (SOD)-like activity, and nitrite scavenging ability.

Methods: Medicinal materials for the Scolopendrid pharmacopuncture were made at the Korean Pharmacopuncture Institute, and various biological activities were measured.

Results: The total polyphenol content of the Scolopendrid Pharmacopuncture were 35.859mg/L. The electron donation ability on DPPH was 36.82%. The 2,2'-azinobis-3-ehlbezothiazoline-6-sulfonic acid radical decolorization (ABTS) was 84.7%. The SOD-like activity of the Scolopendrid pharmacopuncture was 44.33%. The nitrite scavenging effects were pH dependent and were highest at pH 1.5 (45.2%) and lowest at pH 6.0 (11.3%).

Conclusions: We conclude that the Scolopendrid pharmacopuncture may be useful as a potential source of antioxidants.

Key Words: Scolopendrid pharmacopuncture, Nitrite scavenging ability, SOD-like activity, Antioxidant activity

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Effects of Sweet Bee Venom on the Cardiovascular System in Conscious Telemetered Beagle Dogs

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Abstract

Objecetives: This study was performed to analyze the effects of Sweet Bee Venom (Sweet BV) on the cardiovascular system in conscious telemetered Beagle dogs.

Methods: All experiments were conducted at Biotoxtech Company, an institution authorized to perform non-clinical studies, under the regulations of Good Laboratory Practice (GLP). Male Beagle dogs of 13–19 months were chosen for the pilot study and surgical implantation was performed on conscious telemetered Beagle dogs. After the condition of the Beagle dogs had been confirmed to be stable, Sweet BV was administered 4 times (first: 0.0mg/kg, 2nd: 0.01 mg/kg, 3rd: 0.1 mg/kg, and fourth: 0.5mg/kg, one time/week) in the thigh muscle of the Beagle dogs. The blood pressure, heart rate, and clinical responses were measured and electrocardiobiography was performed. And amount of normal saline equal to the amount of Sweet BV administered to the experiment groups was administered to the control group.

Results: 1. In the analysis of body weight and taking amount, Beagle dogs did not show significant changes. 2. In the clinical observation, responses of pain and edema depended on the dosage of Sweet BV. 3. In the analysis of the blood pressure, treatment with Sweet BV did not show a significant change at a dosage of 0.01mg/kg, but at dosages of 0.1 mg/kg and 0.5mg/kg. Treatment with Sweet BV increased the blood pressure significantly. 4. In the analysis of the heart rate, treatment with Sweet BV did not show significant changes for all dosages and periods. 5. In the analysis of electrocardiography, treatment with Sweet BV did not show significant changes for all dosages and periods.

Conclusion: The above findings suggest that Sweet BV is relatively safe as a treatment for the cardiovascular system. But if over dosed, Sweet BV may cause of increased blood pressure. Further studies on the subject should be conducted to yield more concrete results.

Key Words: Melittin, Sweet Bee Venom, Cardiovascular system, Beagle dog

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Pharmacopuncture of Anti-inflammatory Herbal Compounds Suppresses Colon Inflammation-induced c-Fos like Protein Expression in Rats

Jeong Bang Song, In Chul Sohn, Seong Hun Ahn, Jae Hyo Kim

Abstract

Objectives: Colitis is an inflammatory bowel disease characterized by colonic mucosal inflammation and chronic relapsing events. The purpose of this study is to evaluate the effects of pharmacopuncture with an anti-inflammatory herbal compound (AiC) applied to different acupoints on acute colitis induced by trinitrobenzenesulphonic acid (TNBS) intra-colonic injection in rats.

Methods: In male Sprague-Dawley rats weighing 250–400g, TNBS (5mg/kg) was infused intrarectally through a silicon rubber catheter into the anus under isoflurane anaesthesia. Acupoints of LI4 (Hapkok), ST25 (Cheonchu), ST36 (Joksamni), and BL25 (Daejangsu) were intramuscularly injected with AiC, respectively (injection volume & times: 0.2mL/acupoint; twice on the 2nd & the 3rd days). Immunohistochemistry was used to observe the expressions of cFos protein in the periaqueductal gray (PAG), locus coeruleus (LC), nucleus of solitary tract (Sol), and the 6th lumbar spinal cord (L6s.c.) at 24hr after TNBS-induced colitis.

Results: The expression of c-Fos protein in the L6s.c., Sol, LC and PAG increased 24hr after TNBS injection into colon as compared to the normal and the 50%-ethanol treated groups. AiC applied to LI4 inhibited the expression of c-Fos protein in Sol and PAG but not in L6s.c. and LC. AiC applied to ST36 showed significant inhibition of the c-Fos expression in L6s.c., Sol and PAG. AiC applied to ST25 only affected in L6s.c. and PAG. AiC applied to BL25 significantly inhibited the expression of c-Fos protein over all areas. To investigate whether or not endogenous opioids were involved, intrathecal injection of naltrexone (30ug/30ul) was applied before the 2nd pharmacopuncture treatment 24hr after TNBS-induced colitis in the rat. Naltrexone reversed the inhibition of c-Fos protein expression in the spinal cord and the brainstem.

Conclusion: These data show that pharmacopuncture of AiC potently inhibits signal pathways, increasing hypersensitivity of the colorectum after TNBS-induced colitis, and depends on the endogenous opioids at the various acupoints.

Key Words: Pharmacopuncture, Anti-inflammatory herbal compound, Colitis, Rat

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Inhibitory Effect of Gallic Acid on Production of Interleukins in Mouse Macrophage Stimulated by Lipopolysaccharide

Wansu Park

Abstract

Objectives: Gallic acid (GA) is the major component of tannin, which can be easily found in various natural materials such as green tea, red tea, grape juice, and Corni Fructus. The purpose of this study is to investigate the effect of gallic acid (GA) on the production of interleukin (IL) in mouse macrophage Raw 264.7 cells stimulated by lipopolysaccharide (LPS).

Methods: Productions of interleukins were measured by using a high-throughput multiplex-bead-based assay with a Bio-plex Suspension Array System based on xMAP (multi-analyte profiling beads) technology. First, a cell culture supernatant was obtained after treatment with LPS and GA for 24 hour. Then, it was incubated with the antibody-conjugated beads for 30 minutes. Then detection antibody was added and incubated for 30 minutes, and streptavidin-conjugated phycoerythrin (SAPE) was added. After incubation for 30 minutes, the level of SAPE fluorescence was analyzed by using the Bio-plex Suspension Array System, and the concentration of interleukin was determined.

Results: The results of the experiment are as follows: 1. At concentrations of 25, 50, 100, 200uM, GA significantly inhibited the production of IL-3, IL-10, IL-12p40, and IL-17 in LPS-induced mouse macrophage RAW 264.7 cells ($p<0.05$). 2. GA at concentration of 50, 100, 200uM significantly inhibited the production of IL-6 in LPS-induced mouse macrophage RAW 264.7 cells ($p<0.05$). 3. GA diminished the production of some cytokine, such as IL-4, IL-5, and IL-13 in LPS-induced mouse macrophage RAW 264.7 cells. 4. GA did not inhibit the production of IL-1a and IL-9 in LPS-induced mouse macrophage RAW 264.7 cells.

Conclusion: These results suggest that GA has an anti-inflammatory effect related to its inhibiting the production of interleukins such as IL-3, IL-10, IL-12p40, IL-17, and IL-6 in LPS-induced macrophages.

Key Words: Gallic acid, Macrophage, Interleukin, Inflammation, Lipopolysaccharide

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Beneficial Effect of Paljeong-san Pharmacopuncture Treatment Combined with Peritoneal Injection on Glycerol-Induced Acute Renal Failure in Rabbits

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Abstract

Objectives: The present study was carried out to determine if Paljeong-san extract (PJS) has a beneficial effect in the treatment of glycerol-induced acute renal failure in rabbits.

Materials and Methods: PJS was selected on the basis of its invigorating the kidney, which can eliminate pathogens. Rabbits were treated with PJS pharmacopuncture on the Shin-shu (BL23) point for 5 days right after the injection of a 50% concentration of glycerol (5 mL/kg body weight).

Results & Conclusion: Glycerol injection caused increases in the serum creatinine and the (BUN) levels and in urine glucose secretion, which were accompanied by a reduction in (GFR). PJS pharmacopuncture treatment, combined with peritoneal injection, showed a beneficial effect in the treatment of glycerol-induced acute renal failure by inhibiting the increase in serum creatinine and decrease in GFR.

Key Words: Paljeong-san, Pharmacopuncture, Peritoneal injection, Acute renal failure
